

# T4

## Universal System Controller



# T4

## Installation & Operation Guide

v1.0



## **FEDERAL COMMUNICATIONS COMMISSION NOTICE**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

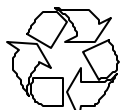
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

**FCC ID: MMURTI0500**

**CAN: 3166-RTI0500**

## BATTERY DISPOSAL



Li-polymer

For environmental reasons, your *T4* universal system controller uses “environmentally sound” Lithium-ion rechargeable batteries. These batteries do not contain any poisonous heavy metals that can damage the environment.

In the interest of recycling, please do not dispose of these batteries in the household waste at the end of their useful life. Instead, dispose of them at an appropriate collection site.

## SAFETY SUGGESTIONS

**Read Instructions.** Read all safety and operating instructions before operating the unit.

**Heat.** Keep the unit away from heat sources such as radiators, heat registers, stoves, etc., including amplifiers that produce heat.

**Power Sources.** Connect the docking station only to the power supply that was included with the unit. Recharge the battery only with the docking station that was included with the unit.

**Power Cord Protection.** Route power supply cords so that they are not likely to be walked on or pinched by items placed on or against them, paying particular attention to the cords at power receptacles and at the point at which they exit from the unit.

**Nonuse Periods.** Unplug the power supply from the outlet when the unit is to be left unused for a long period.

**Water and Moisture.** Do not use the unit near water—for example, near a sink, in a wet basement, near a swimming pool, near an open window, etc.

**Object and Liquid Entry.** Do not allow objects to fall or liquids to be spilled into the enclosure through openings.

**Cleaning.** The unit should be cleaned only as recommended in the operating guide.

**Servicing.** Do not attempt any service beyond that described in the operating guide. Refer all other service needs to qualified service personnel.

**Damage Requiring Service.** The unit should be serviced by qualified service personnel when:

- The power supply cord or the plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit does not appear to operate normally or exhibits a marked change in performance.

## **LIMITED WARRANTY**

Remote Technologies Incorporated warrants its products for a period of one (1) year from the date of purchase from Remote Technologies Incorporated or an authorized Remote Technologies Incorporated distributor.

This warranty may be enforced by the original purchaser and subsequent owners during the warranty period, so long as the original dated sales receipt or other proof of warranty coverage is presented when warranty service is required.

Except as specified below, this warranty covers all defects in material and workmanship in this product. The following are not covered by the warranty:

Damage resulting from:

1. Accident, misuse, abuse, or neglect.
2. Failure to follow instructions contained in this Guide.
3. Repair or attempted repair by anyone other than Remote Technologies Incorporated.
4. Causes other than product defects, including lack of skill, competence or experience of user.
5. Shipment of this product (claims must be made to carrier).
6. Being altered or which the serial number has been defaced, modified or removed.

Remote Technologies Incorporated is not liable for any damages caused by its products or for its failure of its products to perform, including any lost profits, lost savings, incidental damages, or consequential damages.

Remote Technologies Incorporated is not liable for damages based upon inconvenience, loss of use of the product, loss of time, interrupted operation, commercial loss, any claim made by a third party or made by you for a third party.

Remote Technologies Incorporated's liability for any defective product is limited to repair or replacement of the product, at our option.

If your T4 needs service, please contact Remote Technologies Incorporated by telephone, fax or e-mail for return information.

***Please do not return products to RTI without return authorization.***

### **DISCLAIMER**

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T4, *It's Under Control*, *TheaterTouch*, and the RTI logo are trademarks of Remote Technologies Incorporated.

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# Chapter 1. Welcome

Thank you for purchasing the *T4* universal controller. The *T4* is an advanced wireless universal system controller that provides a self-contained control system for controlling audio/video components, lights, and other electronic systems in the home. Its design maintains the perfect balance between display size and resolution. At 6.4 inches the LCD is small enough to be a truly hand-held device, yet it provides the full VGA resolution necessary for displaying video windows and web pages. The *T4* interface is fully programmable using RTI's TheaterTouch Designer™ software, making it easy to display custom buttons, text, graphics, and animations.

Programming is easy and convenient thanks to the Windows® based *TheaterTouch Designer™* software. Because RTI's remote control products are sold only through professional installers/programmers, and never directly to consumers, it is our philosophy to not incorporate programming capability directly into our products. Instead, we are committed to providing our dealers with the hardware and software tools that allow them to create re-usable programming databases and templates in the most efficient and reliable way possible.

The *T4* is capable of both infrared and radio frequency output. Optional RF receivers are available for transmission through walls and cabinets. The RF receivers connect to an RTI control system for the ultimate in control reliability and flexibility. RTI control systems provide many advanced features such as IR routing, local macro execution, power sensing, and RS-232 control.

The *T4* can be used as a stand-alone device or as part of an expandable central control system. When used with the available RTI accessory devices, the *T4* is capable of infrared routing, relay control, power sensing, and RS -232 communications for advanced control.

### COMPATIBILITY NOTE

The *T4* and *TheaterTouch Designer™* software are compatible with infrared (IR) commands with carrier frequencies between 15KhZ and 460KhZ, as well as those commands that do not use a carrier. This covers virtually all of the remotes that exist to date.

### UNPACKING AND INSPECTION

After unpacking your new *T4* universal system controller, save all of the packing materials in case you ever have to ship the unit.

Thoroughly inspect the *T4* and packing materials for signs of damage. Report any damage to the carrier immediately. Report any equipment malfunctions to Remote Technologies Incorporated or an authorized Remote Technologies Incorporated distributor.

### PRODUCT CONTENTS

Contents within the box include the following items:

- One (1) *T4* universal system controller
- One (1) Docking Station
- One (1) Universal Power Supply
- One (1) Operation guide

### SOFTWARE REQUIREMENTS

The recommended minimum system requirements needed to run the *TheaterTouch Designer* software are as follows:

- Windows 98SE®, Windows ME®, Windows 2000®, Windows XP® or later version.
- A free USB port.
- At least 64 Megabytes of RAM.
- At least 100 Megabytes of free disk storage.

# Chapter 2. Introduction

## FEATURES

The T4 provides superior quality and reliability as well as these specific features:

- Ergonomic design permits effortless operation.
- Full color TFT LCD to display custom buttons, text, graphics, and animations.
- Integrated 802.11 WiFi.
- Integrated high--resolution touchscreen.
- Powerful 32--bit, 400MHz XScale processor.
- 32MByte of Flash Memory
- Tilt switch can automatically turn on backlight when picked up.
- Extremely bright, backlit display and keys with adjustable brightness.
- Stereo speakers.
- Thirteen assignable/programmable keys.
- Transmits IR and RF (or both -on a single button or within a macro).
- Optional RF receiver allows you to transmit through walls, cabinets, etc.
- Includes a Lithium--Polymer Battery and docking station.
- Completely customizable, programmable, and upgradeable.
- Extremely wide IR transmitting frequency range.
- Optional VESA mounting module with Power-Over-Ethernet and analog video inputs.
- Optional 'Voltage' and 'Video' power sensing modules.

- Optional interface for RS-232 controlled equipment.
- Interchangeable front and back bezel colors.
- Non--volatile Flash memory stores your program even when power is lost.
- Easy--to-use Windows based software for programming and customization.
- Field upgradeable firmware.
- USB Programming.

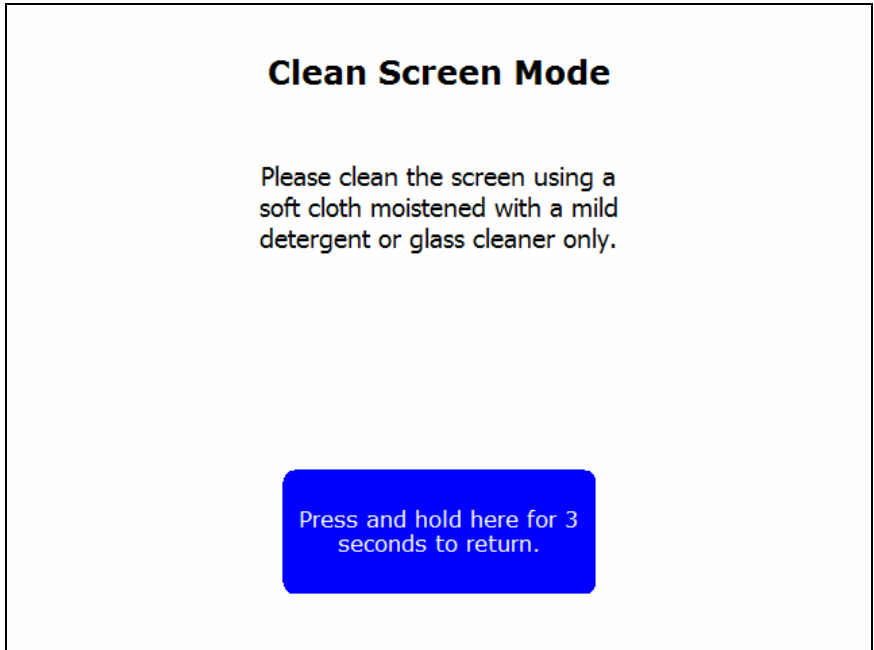
### IMPORTANT NOTES

Please read these important notes about the *T4*:

- The *T4* should be placed in an area where it is around normal room temperature (between 60°F to 90°F). If the temperature is too hot, the display appears dim. If the temperature is too cold, the display appears dark and may respond slowly.
- Avoid installing the *T4* in a location where it can come in contact with direct sunlight.
- Do not use sharp objects on the touchscreen. It is designed to operate with a touch of your finger.
- Do not let the *T4* get wet. It should not be handled with wet hands or placed in an area where it could get wet.
- Do not subject the *T4* to smoke, dust, or vibrations. The display may be damaged from excessive shock or vibration.
- Only use the power supply that is specified for the *T4*. Using the wrong type of power supply may result in damage.
- Do not disassemble the unit. Service of the *T4* should be performed by authorized personnel only.

## CLEANING

Occasional cleaning may be required, depending on use. It is recommended that you create a “Clean” button somewhere on the Home page of the *T4*. This button should link to a page that does not contain commands or macros that could be inadvertently executed while cleaning the unit.



To clean your *T4*, lightly dampen a lint-free cloth with a glass cleaner or mild detergent, and wipe the touchscreen, buttons, and outer surfaces.

## BATTERY AND DOCKING STATION

The *T4* uses a Lithium-polmer rechargeable battery. This battery does not exhibit any type of “Memory Effect” from being charged too often. Since the *T4* can safely be charged after each use, a docking station is included for convenience. If left out of the

docking station, the *T4* will remain in sleep mode for 1 – 2 months before shutting down. At that point the battery must be recharged.

If the *T4* battery capacity is reduced to approximately 25 percent, the low battery LED located on the front bezel of the *T4* will illuminate red.

Alternatively, if the keypad backlights are programmed to be disabled, a low battery icon will appear in the top center of the display:



The low battery icon will change color to red if the battery capacity becomes critically low:



At this point the *T4* must be placed into the docking station to recharge the battery.

The docking station LED illuminates red to indicate a charge in progress. The LED will turn green when the battery in the unit is fully charged.

A fully discharged battery will take approximately 4-5 hours to completely re-charge.

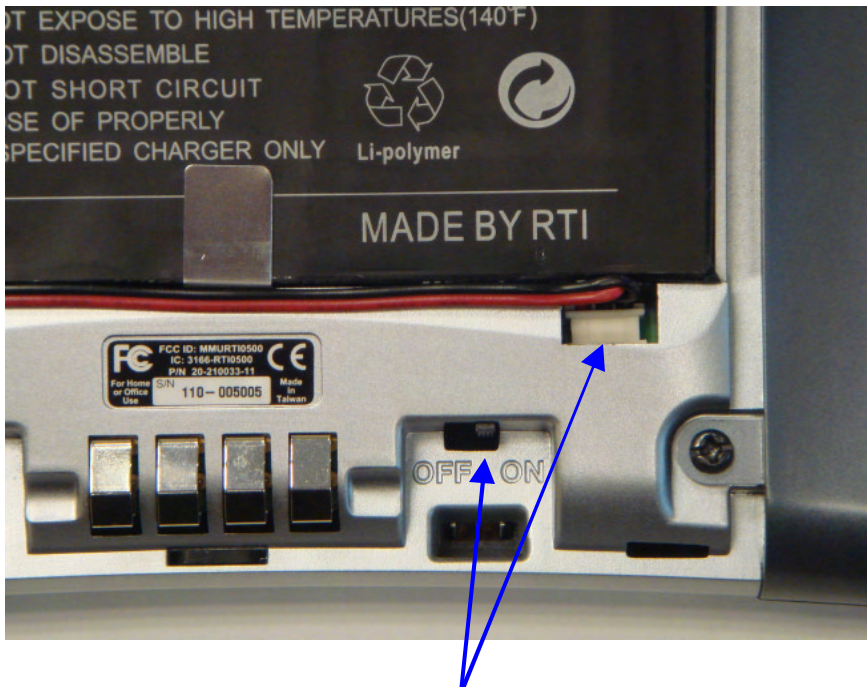
The *T4* can remain in the docking station indefinitely without damage to the battery.

## GETTING STARTED

The T4 is turned-on by simply sliding the power switch (located in the battery compartment) into the 'ON' position. If the unit shows no activity, the battery may need to be re-charged.

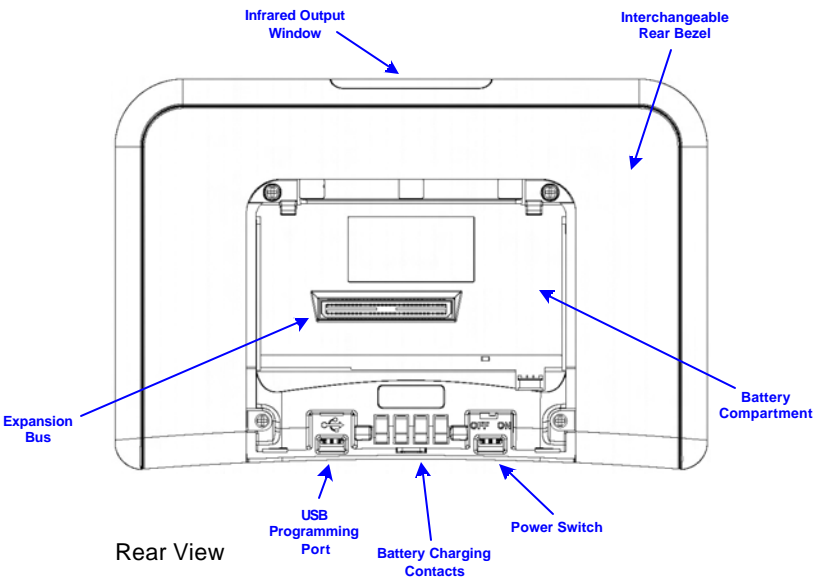
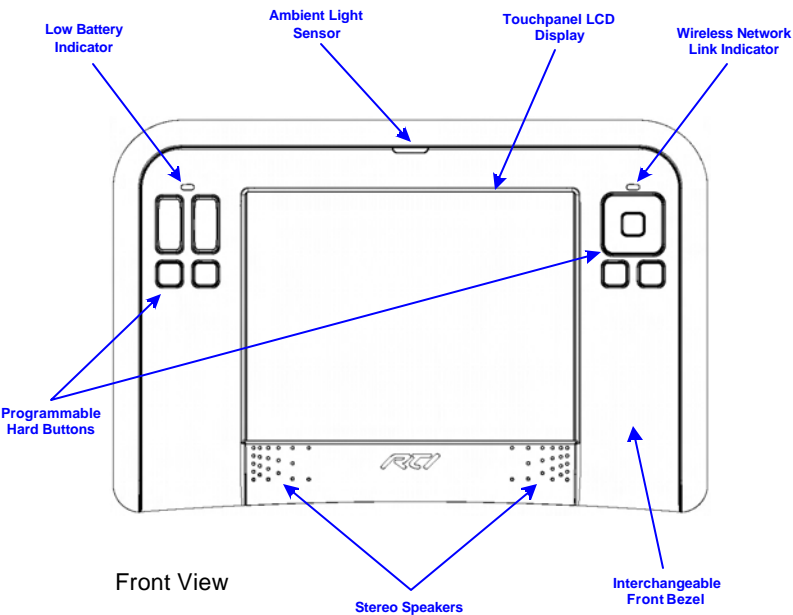
After power is applied, the T4 will take approximately ten seconds to load the operating system, the application software, and the user program. This long delay only occurs from a power-down state. During normal use the T4 turns-on instantly from its power down mode.

After powering down, the T4 is turned-on by touching any area of the display or any keypad button. If the tilt sensor is enabled, picking up the unit will also turn it on.



The power switch should be in the ON position, and the battery connector should be attached.

REMOTE REFERENCE



# Chapter 3. Operation

## THE TOUCHSCREEN DISPLAY

The *T4* touchscreen display is organized into a series of pages. Normally each page contains objects (buttons, text, graphics, etc.) that are related in some way. For instance, they may all display information necessary for controlling a particular CD player.

By default, the *T4* has one *Home* page—all other pages are normally accessed from links on the Home page. In addition, any page can contain buttons with a link to any other page.

Normally the Home page is used to display the names of the A/V sources and other devices being controlled. The *T4* will support 200 pages including the Home page.

A representation of a programmed Home page is shown below:

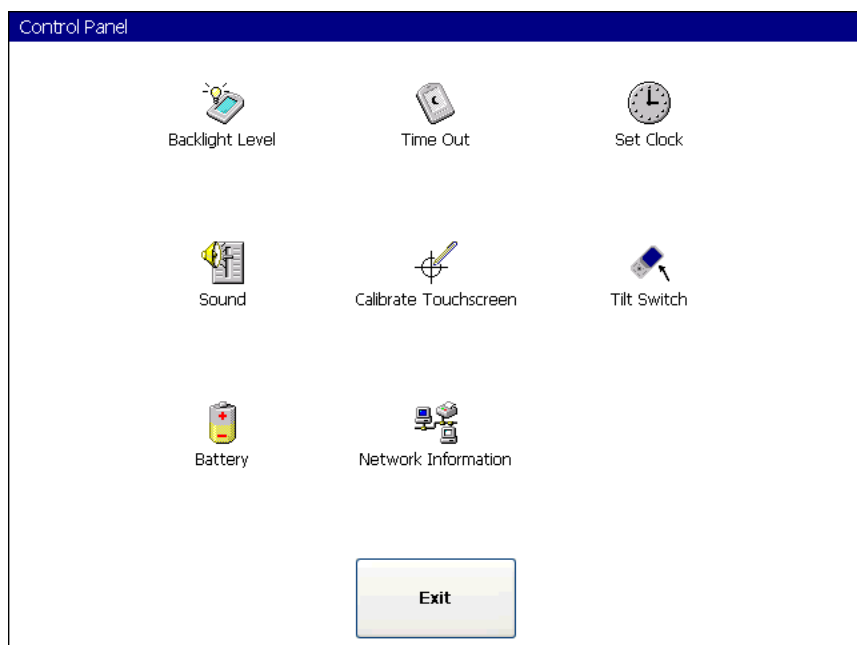


### THE CONTROL PANEL PAGE

The Control Panel page can be displayed by pressing and holding the touchscreen while sliding the power switch from the 'OFF' position to the 'ON' position. Continue to hold the touchscreen until the Control Panel appears.

You can also access the Control Panel page by assigning a "Control Panel" page link to a button using the *TheaterTouch Designer™* software.

A representation of the Control Panel page is shown below:

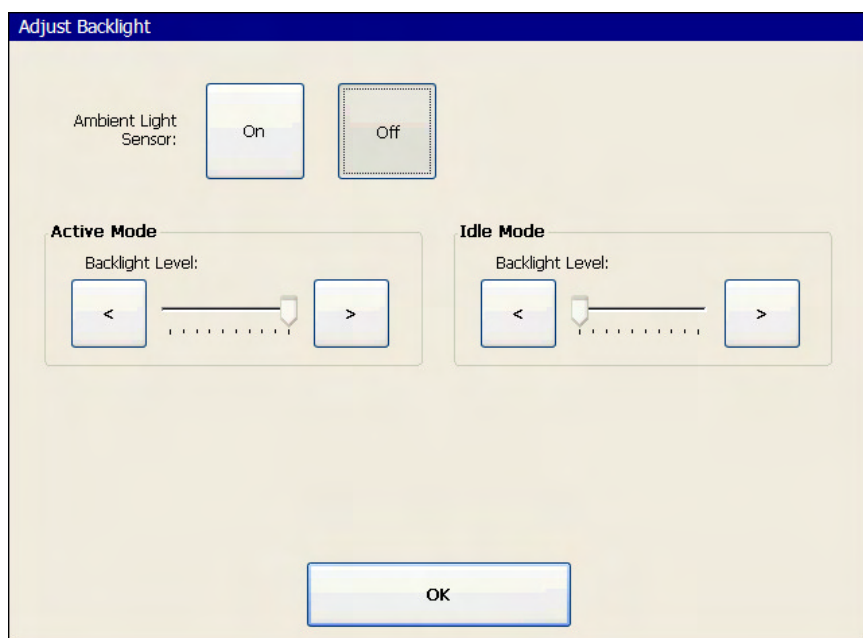


To return to the user program, press Exit.

## BACKLIGHT LEVEL

This button displays a window that allows you to adjust the backlight brightness and enable/disable the Ambient Light Sensor.

If the light sensor is disabled, there is only one backlight level to adjust. Press the left arrow or right arrow buttons to adjust. Press the OK button when finished.



With the light sensor disabled, the backlight brightness will always stay at the same level whenever the *T4* is turned-on.

If the light sensor is enabled, there are two backlight levels to adjust. Press the left arrow or right arrow buttons to adjust. Press the OK button when finished.

The image shows a graphical user interface titled "Adjust Backlight". At the top, there are two buttons labeled "On" and "Off" under the heading "Ambient Light Sensor:". Below this, there are two main sections: "Active Mode" and "Idle Mode". Each section contains two sliders: "Backlight in Normal Conditions:" and "Backlight in Dark Conditions:". Each slider has a left arrow button, a right arrow button, and a central indicator. At the bottom of the screen is a large "OK" button.

With the light sensor enabled, the backlight brightness will automatically change between the two levels, depending upon the ambient lighting conditions.

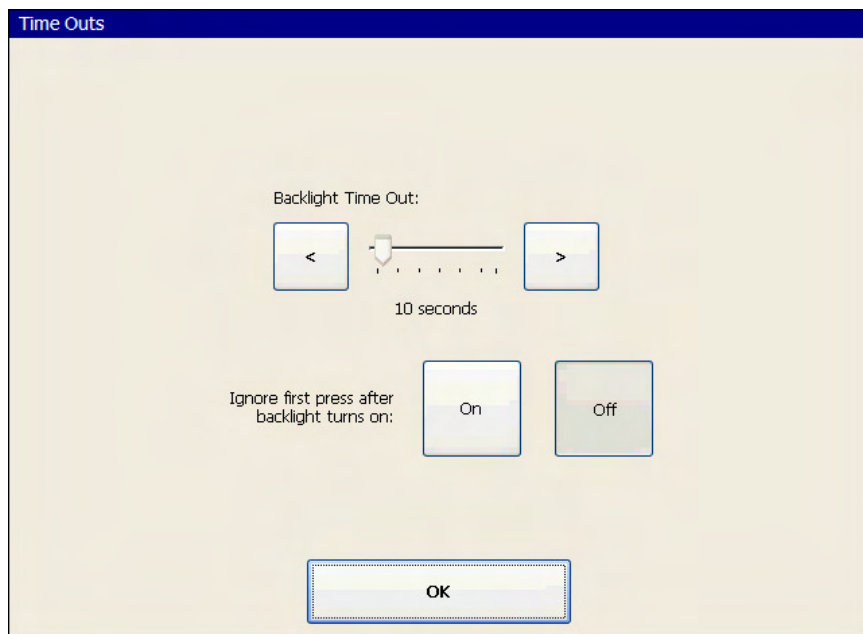
**Note:** Non-zero values for the backlight level in Idle mode can be entered, but will be ignored unless the T4 is on the docking station. Also, the maximum idle mode backlight setting is 30% while on the docking station.

## TIME OUT

This button displays a window that allows you to adjust the amount of time the unit stays awake after the last button press. The time is variable from 1 second to 120 seconds (the default is 10 seconds). Press the arrows to the left or right of the Time Out setting to adjust the time.

If the backlight is programmed to turn off in idle mode, it is a good idea to ignore the initial press of the touchscreen that turns the backlight on. This will prevent unwanted button activations from occurring (since you can't see what you're pressing on the touchscreen when the backlight is off). Select On to ignore the first press, or Off to accept the first press.

Press the OK button when finished.



**SET CLOCK**

This button displays a window that allows you to adjust the settings for the built-in real time clock and calendar. You may never need to adjust these settings manually since the T4 will automatically sync with a PC or an internet NTP server when connected.

Press the OK button when finished.

Clock

Hour: - 12 PM +

Day: - 15 +

Minute: - 3 +

Month: - August +

Second: - 45 +

Year: - 2005 +

Time Zone: -

(GMT-06:00) Central Time (US & Canada)

+

Automatically adjust clock for daylight saving time:

On

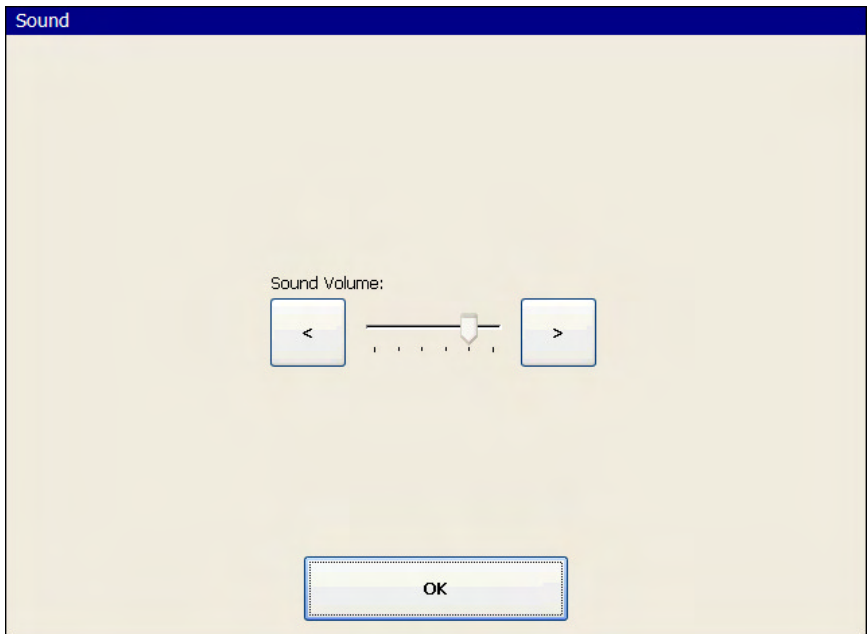
Off

OK

**SOUND**

This button displays a window that allows you to adjust the volume of the audible speakers. The speaker sound provides feedback that a button was pressed. Press the arrows to the left or right to adjust the volume.

Press the OK button when finished.



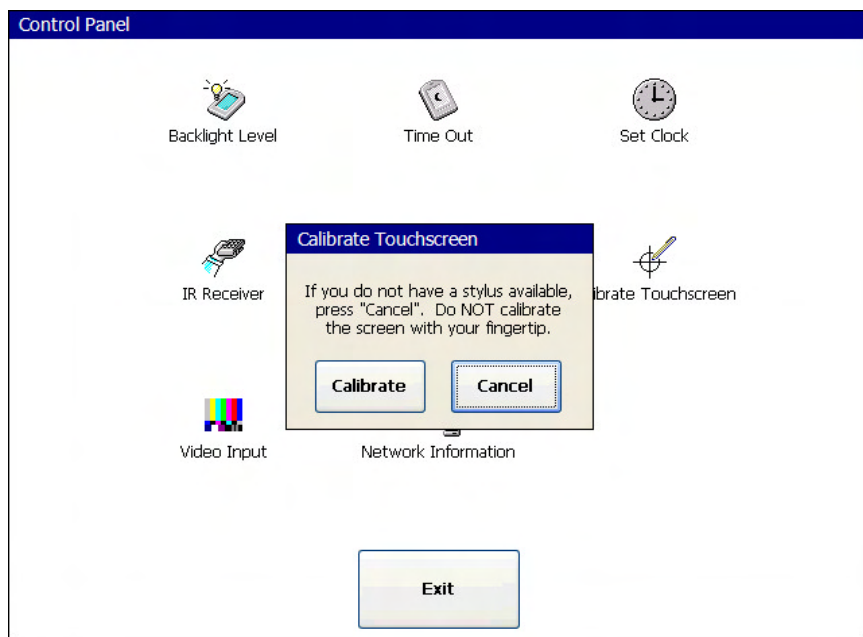
There are six discrete volume settings. The lowest setting disables the speaker.

### CALIBRATE TOUCHSCREEN

This button runs a routine that allows you to calibrate the touchscreen. Since it normally should not be necessary to calibrate the touchscreen, this routine is included as a precaution only.

**Warning:** Do not attempt to calibrate the touchscreen with your fingertip. Proper calibration requires a stylus or other fine tip. Do not use metal objects such as ball point pens or screwdrivers that can damage the surface of the touchscreen.

Press the Calibrate button to continue.



Follow the directions on the display to complete the calibration process. You can cancel the calibration by pressing the 'exit' keypad button on the T4.

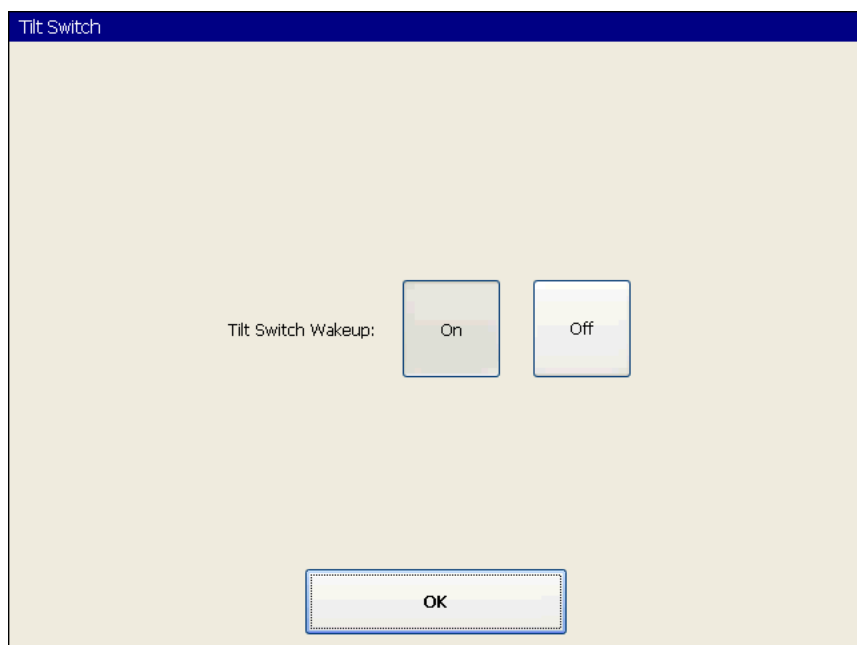
## TILT SWITCH

This button displays a window that allows you to adjust the settings for the built-in tilt sensor. The tilt switch is a motion detector that turns the remote on when activated.

**On** means the tilt switch is active and will wake-up the *T3* when it is moved.

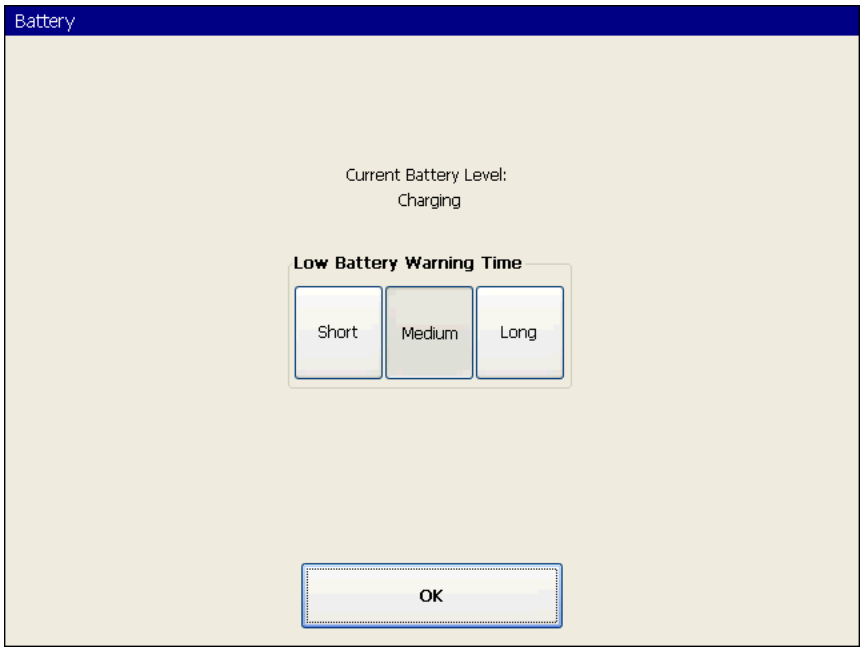
**Off** means the tilt switch is inactive.

Press the OK button when finished.



**BATTERY**

This button displays a window that allows you to adjust the relative amount of time that the low battery icon appears on the display. This setting will determine how much time you have between the appearance of the low battery warning and the battery becoming completely depleted. Press the OK button when finished.



## NETWORK INFORMATION

This button displays a window that allows you to view the Ethernet network information. This is mainly for troubleshooting purposes.

Press the OK button when finished.

The image shows a 'Network' configuration window. It has a blue title bar with the word 'Network' in white. The main area is divided into two columns: 'Wireless (802.11b)' on the left and 'Hardwired (100BaseT)' on the right. Each column contains several text input fields for configuration. The 'Wireless' column includes fields for Mode (set to DHCP), IP Address (10.0.0.11), Netmask (255.255.255.0), Gateway (10.0.0.1), DNS Server (10.0.0.3), MAC Address (00-0b-6c-1f-bd-f8), and SSID (RTI). Below these is a 'Signal Strength' indicator with a green bar graph showing four bars. At the bottom of the 'Wireless' column are 'On' and 'Off' buttons. The 'Hardwired' column has similar fields for Mode (DHCP), IP Address (10.0.0.31), Netmask (255.255.255.0), Gateway (10.0.0.1), DNS Server (10.0.0.3), and MAC Address (00-15-26-01-02-03). At the bottom center of the window is a large 'OK' button.

	Wireless (802.11b)	Hardwired (100BaseT)
Mode:	DHCP	DHCP
IP Address:	10.0.0.11	10.0.0.31
Netmask:	255.255.255.0	255.255.255.0
Gateway:	10.0.0.1	10.0.0.1
DNS Server:	10.0.0.3	10.0.0.3
MAC Address:	00-0b-6c-1f-bd-f8	00-15-26-01-02-03
SSID:	RTI	
Signal Strength:		
Enable:	<input type="button" value="On"/> <input type="button" value="Off"/>	

- Note:**
- The "Mode" field will show "Static" or "DHCP" for the IP addressing mode if the network adapter is active. For the Hardwired adapter, it will show "Not Installed" if there is no expansion module present. For the Wireless adapter, it will show "Disabled" if it is disabled or "Not Connected" if it is enabled but does not have an active wireless connection.
  - The Enable button does not take effect until the OK button is pressed. If you are enabling the adapter and want to see the

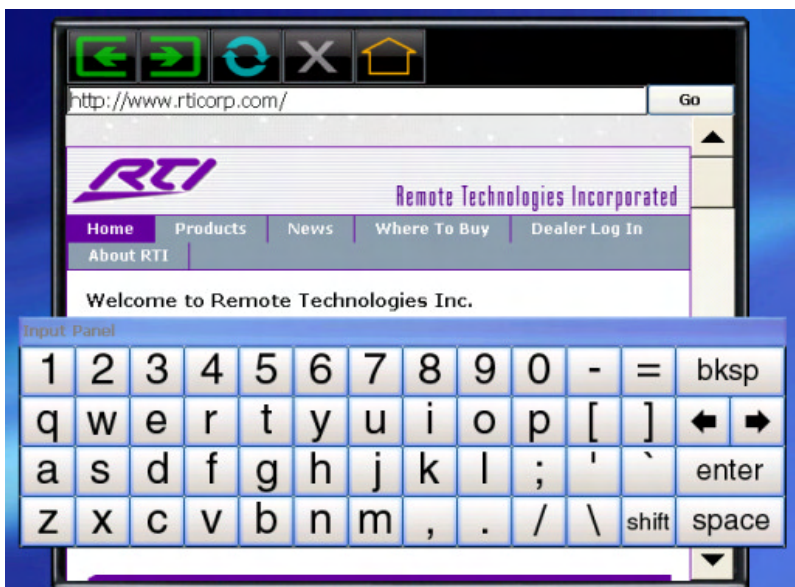
signal strength - press ON, then press OK, then choose the "Network Information" control panel again.

- Since the T4 can be programmed with the settings for more than one network, the SSID field shows which wireless network is currently connected.

## THE WEB BROWSER

The T4 includes Internet Explorer® for web browsing on the internet. Although most website content is compatible with the T4, please note that plug-ins such as JAVA® and Flash®, streaming video, and persistent cookies are not supported.

A graphical representation of a keyboard will automatically pop-up on the display whenever text entry is required. The keyboard can be dragged around the display by using its title bar. It can be dismissed by touching anywhere on the display that is outside of the keyboard.



# Chapter 4. Programming

## PROGRAMMING THE T4

The T4 is programmed using RTI's *TheaterTouch Designer™* software. RTI dealers can download the software free of charge from:

[www.rticorp.com/dealers](http://www.rticorp.com/dealers)

A PC running Windows® 98SE or higher with a USB port is required. The required USB cable is included with the RTI *IR-PRO* dealer kit.

In addition to using the USB port, the T4 can also be programmed wirelessly via a LAN connection to its 802.11 card. This allows you to update multiple T4 units from one location, either at the site or remotely.

**Note:** The T4 must be initially programmed using its USB port so that the network information can be entered.



## Chapter 5. Troubleshooting

If you are having problems with your *T4*, please read these troubleshooting tips before contacting technical support.

If you continue to have problems, see Chapter 6 for more information on contacting RTI technical support.

### **DISPLAY IS DIM, BLANK OR UNREADABLE**

Make sure the external power supply is properly secured to the *T4*, and it is functioning properly.

Try adjusting the backlight level from the **Control Panel** page (Refer to Chapter 3 for more details).

By nature, the contrast of an LCD screen changes with temperature, so if the display is cold it will appear dark and will return to normal as it warms.

### **USB COMMUNICATION PROBLEMS**

Verify that your PC is running Windows® 98SE or higher.

Verify that the *T4* USB driver was installed the first time the *T4* was connected to your PC.

Verify that the *T4* is present in the Device Manager within the Windows® Control Panel.

Make sure you are using the programming cable that was supplied by RTI and that both ends are connected securely.

Make sure the PC detects the presence of the *T4*. If it doesn't, unplug the USB cable, wait for about ten seconds, and plug it in again.

If the download fails after some data has been transferred, try re-sending the program.

### **IR CODE PROBLEMS**

If you are using an IR repeater system, make sure it is working correctly with the original OEM remote. If not, you will need to troubleshoot the IR repeater system.

If you are still having problems, try adjusting the IR code “Minimum Repeats” value in the *TheaterTouch Designer* programming software.

If the IR code is executed inside a macro that contains multiple IR codes, try inserting a small time delay before the problem code. If there already is a delay, try increasing it.

# **Chapter 6. Service and Support**

## **UPDATES AND NEW PRODUCTS**

For news about the latest updates, new product information and accessories, please visit our web site at:

[www.rticorp.com](http://www.rticorp.com)

## **CONTACTING REMOTE TECHNOLOGIES INCORPORATED**

For general info, you can contact RTI at:

Remote Technologies Incorporated

Tel. (952) 253-3100

Fax (952) 253-3131

[info@rticorp.com](mailto:info@rticorp.com)

[www.rticorp.com](http://www.rticorp.com)

## **RTI TECHNICAL SUPPORT**

At RTI, customer service and satisfaction is an utmost priority. If you are encountering any problems or have a question about your RTI product, please contact RTI Technical Support for assistance.

RTI provides technical support by telephone, fax or e-mail. For the highest quality service, please have the following information ready, or provide it in your fax or e-mail.

- Your Name
- Company Name
- Telephone Number
- E-mail Address
- Product model and serial number (if applicable)

If you are having a problem with hardware, please note the equipment in your system, a description of the problem, and any troubleshooting you have already tried.

If you are having a problem with software, please note what version you have installed, the operating system on your PC, a description of the problem, and any troubleshooting you have already tried.

If you are calling about a software or programming question or problem, please be at your computer when you place your call. This will considerably speed up the troubleshooting process.

For **Technical Support** or assistance with your RTI product, contact RTI at:

(952) 253-3137

[support@rticorp.com](mailto:support@rticorp.com)

[www.rticorp.com/support](http://www.rticorp.com/support)

For questions regarding **Service or Repair** of your RTI product, contact RTI at:

(952) 253-3136

[service@rticorp.com](mailto:service@rticorp.com)

[www.rticorp.com/service](http://www.rticorp.com/service)

*Please do not return products to RTI without return authorization.*

# Specifications

<b>Power</b>	7.2 VDC, 4000 mAh Li-polymer Battery Pack
<b>Power Management</b>	Automatic On/Off (tilt switch)
<b>Infrared Control Range</b>	30 Feet (9.1m) @ 60 Degrees
<b>Infrared Frequency Range</b>	15kHz - 460kHz
<b>Radio Frequency Control Range</b>	Up to 100 Feet (30.5m) (with optional receivers)
<b>Radio Frequency Carrier</b>	- 433MHz (control) - 2.4 GHz (802.11)
<b>Operating Temperature</b>	+32°F to +122°F (+0°C to +50°C)
<b>Operating Humidity</b>	5% to 95% Non-condensing
<b>Display</b>	- High-brightness color TFT LCD - Full VGA (640 x 480 pixels) with 65K colors - 300:1 contrast ratio
<b>Touchscreen</b>	High-resolution resistive
<b>Display size</b>	6.4 in. (162mm) diagonal
<b>Backlights</b>	- White CCFL (Display) - Blue LED (Keypad)

<b>Nominal Run Time on Full Charge</b>	3½ hours min. continuous (5 - 7 days average use)
<b>Standby Time on Full Charge</b>	30 Days
<b>Battery Charge Time</b>	4-5 Hours
<b>Total System Memory</b>	32MByte Flash (non-volatile)
<b>Device Capability</b>	Total number of devices limited only by memory
<b>Macro Capability</b>	<ul style="list-style-type: none"><li>- Up to 64 steps per macro</li><li>- Total number of macros limited only by memory</li><li>- Macros allowed on every button</li></ul>
<b>Communications</b>	USB programming port
<b>Dimensions</b>	Height: 6.2 in. (158mm) Width: 9.4 in. (239mm) Depth: 2.6 in. (66mm)
<b>Enclosure</b>	High-impact molded ABS plastic.
<b>Weight</b>	32 oz. (907g) with battery pack
<b>Warranty</b>	One Year Parts & Labor (90 days on battery pack)

*All specifications are subject to change without notice.*

*It's Under Control*®



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